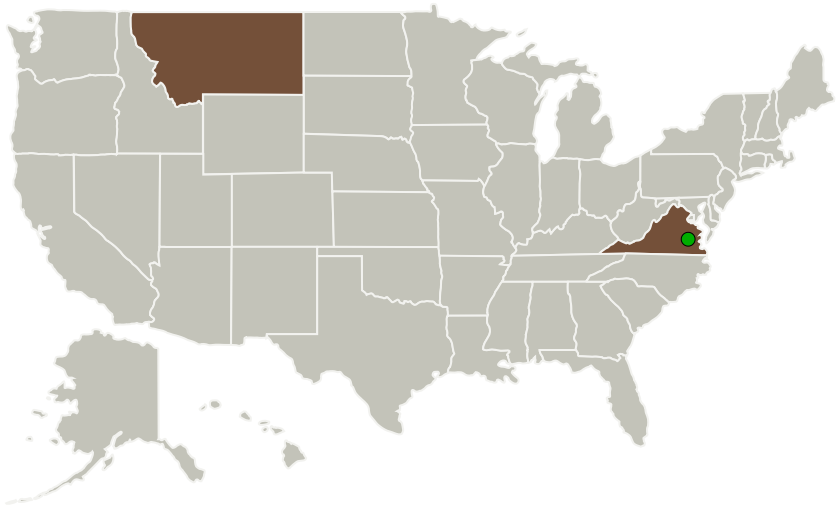
A Multi-Wavelength Transceiver for In-Situ Validation of Airborne Remote Sensing Instruments, Phase II

Completed Technology Project (2016 - 2019)

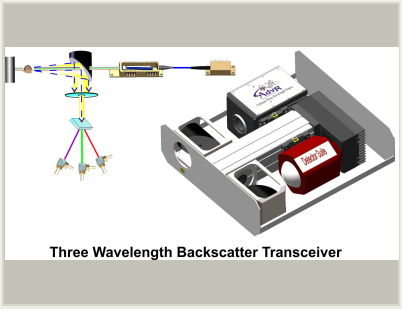
Project Introduction

The overall goal of this Phase II SBIR effort is to develop a three-wavelength, backscatter transceiver for in situ validation of ongoing High Spectral Resolution Lidar measurements. The key innovation in the effort is the use of a multi-element, non-linear waveguide for highly efficient, three wavelength generation in a collinear geometry ideally suited for use in the backscatter nephelometer at the HSRL wavelengths currently under development with NASA Langley's Aerosol Research Group Experiment. Developing an in-flight, backscatter measurement at the three HSRL wavelengths is a critical acquisition for the LARGE program in order both to validate and to establish a direct link between the existing suite of instruments flown to determine of the microphysical properties of aerosols and the remote HSRL measurement. The proposed in situ instrument will validate ongoing remote sensing measurements while further informing climate models through more accurate estimates of atmospheric aerosol distributions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
ADVR, Inc.	Lead Organization	Industry	Bozeman, Montana
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Completed Technology Project (2016 - 2019)

Primary U.S. Work Locations	
Montana	Virginia

Project Transitions

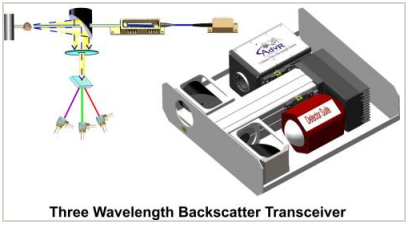
April 2016: Project Start

January 2019: Closed out

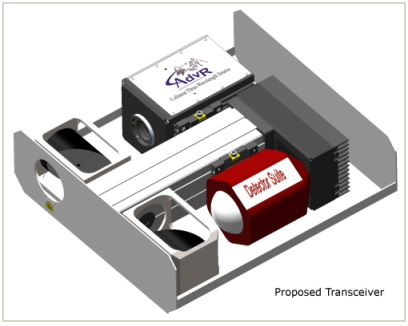
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139821)*

Images



Briefing Chart Image
A Multi-Wavelength Transceiver for In Situ Validation of Airborne Remote Sensing Instruments, Phase II
(https://techport.nasa.gov/image/134036)



Final Summary Chart Image
A Multi-Wavelength Transceiver for In-Situ Validation of Airborne Remote Sensing Instruments, Phase II
(https://techport.nasa.gov/image/129847)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
ADVR, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

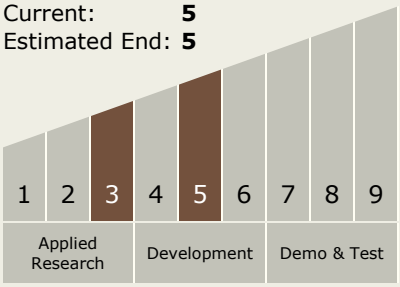
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Justin T Hawthorne

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Completed Technology Project (2016 - 2019)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System